\* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* STN Columbus \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \* \*

FILE 'HOME' ENTERED AT 11:49:05 ON 01 MAR 2008

=> file caplus

COST IN U.S. DOLLARS SINCE FILE TOTAL

FULL ESTIMATED COST

OST ENTRY SESSION 0.84 0.84

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FILE COVERS 1907 - 1 Mar 2008 VOL 148 ISS 10 FILE LAST UPDATED: 29 Feb 2008 (20080229/ED)

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=> e us20040265627/pn
E1
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                   US2004265625/PN
E2
             1
                   US2004265626/PN
E3
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E4
                  US2004265628/PN
             1
E5
                  US2004265629/PN
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            1 US2004265630/PN
1 US2004265631/PN
1 US2004265632/PN
E6
E7
E8
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                  US2004265635/PN
E11
                  US2004265636/PN
            1
E12
                  US2004265637/PN
             1
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L1 1 US2004265627/PN

=> s e3 L1 => d all

- L1 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2008 ACS on STN
- AN 2004:930972 CAPLUS
- DN 141:403236
- ED Entered STN: 06 Nov 2004
- II Organic electroluminescent devices, aminostyrylnaphthalene compounds and synthesis intermediates thereof, and production processes of the same
- IN Ichimura, Mari; Ishibashi, Tadashi; Tamura, Shinichiro
- PA Sony Corporation, Japan

- SO Eur. Pat. Appl., 76 pp.
- CODEN: EPXXDW DT Patent
- LA English
- IC ICM C09K011-06
  - ICS H05B033-14; H01L051-30
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

PATENT NO.		KIND DATE APPLICATION NO. DATE										
PI EP 1473349 EP 1473349		A2 20041103 EP 2004-7087 20040324 A3 20070718										
		, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,										
JP 20043074		, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK A 20041104 JP 2004-33056 20040210										
JP 4001118		B2 20071031										
CN 1533220	12.5	A 20040929 CN 2004-10032650 20040324										
IIS 20040847	27	A 20041006 KR 2004-20020 20040324 A1 20041230 US 2004-807984 20040324										
US 20080516	07	A 20040929 CN 2004-10032650 20040324 A 20041006 KR 2004-20020 20040324 Al 20041230 US 2004-807984 20040324 Al 20080228 US 2007-765560 20070620 A 20030324 A 20040210										
RAI JP 2003-797	68	A 20030324										
JP 2004-330	56	A 20040210										
US 2004-807 LASS	984	A3 20040324										
		PATENT FAMILY CLASSIFICATION CODES										
	ICM	C09K011-06										
	ICS	H05B033-14; H01L051-30										
		H05B0033-14 [I,A]; C09K0011-06 [I,A]; H01L0051-00 [I										
	IPCR	H01L0051-50 [I,C*]; H01L0051-50 [I,A]; H05B0033-14 [I,C]; H05B0033-14 [I,A]; C07C0253-00 [I,C*];										
		C07C0253-30 [I,A]; C07C0255-00 [I,C*]; C07C0255-52										
		[I,A]; C07C0255-58 [I,A]; C07C0255-59 [I,A];										
		C07F0009-00 [I,C*]; C07F0009-40 [I,A]; C07F0009-54										
		[I,A]; C09B0057-00 [I,C*]; C09B0057-00 [I,A]; C09K0011-06 [I,C]; C09K0011-06 [I,A]; H01L0051-00										
		[I,C]; H01L0051-00 [I,A]										
	ECLA	M09K; M09K; T01L; T01L										
JP 2004307472	IPCI	C07C0255-58 [I,A]; C07C0253-30 [I,A]; C07C0253-00 [I,C*]; C07C0255-52 [I,A]; C07C0255-00 [I,C*];										
		C07F0009-40 [I,A]; C07F0009-54 [I,A]; C07F0009-00										
		[I,C*]; C09B0057-00 [I,A]; C09K0011-06 [I,A];										
		H01L0051-50 [I,A]										
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		C07C0255-52 [I,A]; C07C0255-58 [I,A]; C07C0255-59										
		[I,A]; C07F0009-00 [I,C*]; C07F0009-40 [I,A];										
		C07F0009-54 [I,A]; C09B0057-00 [I,C*]; C09B0057-00										
		[I,A]; C09K0011-06 [I,C*]; C09K0011-06 [I,A]; H01L0051-00 [I,C*]; H01L0051-00 [I,A]; H05B0033-14										
		[I,C*]; H05B0033-14 [I,A]										
	ECLA	M09K; M09K; T01L; T01L										
	FTERM	3K007/AB02; 3K007/AB03; 3K007/AB04; 3K007/AB11;										
		3K007/DB03; 3K007/FA01; 4H006/AA01; 4H006/AA02; 4H006/AA03; 4H006/AB84; 4H006/AB91; 4H006/AC22;										
		4H006/AC30; 4H006/BB49; 4H006/BB14; 4H006/BD70;										
		4H050/AA01; 4H050/AA02; 4H050/AA03; 4H050/AB84;										
		4H050/WA24; 4H050/WA26; 4H056/DA02; 4H056/DB10;										

4H056/DB15; 4H056/DC01; 4H056/FA10

CN 1533220 TPCR H01L0051-50 [I,C\*]; H01L0051-50 [I,A]; C07C0253-00 [I,C\*]; C07C0253-30 [I,A]; C07C0255-00 [I,C\*]; C07C0255-52 [I,A]; C07C0255-58 [I,A]; C07C0255-59 [I,A]; C07F0009-00 [I,C\*]; C07F0009-40 [I,A]; C07F0009-54 [I,A]; C09B0057-00 [I,C\*]; C09B0057-00 [I,A]; C09K0011-06 [I,C\*]; C09K0011-06 [I,A]; H01L0051-00 [I,C\*]; H01L0051-00 [I,A]; H05B0033-14 [I,C\*]; H05B0033-14 [I,A] IPCI KR 2004084775 C09K0011-06 [ICM, 7] ECLA M09K; M09K; T01L; T01L US 2004265627 IPCR H01L0051-50 [I,C\*]; H01L0051-50 [I,A]; C07C0253-00 [I,C\*]; C07C0253-30 [I,A]; C07C0255-00 [I,C\*]; C07C0255-52 [I,A]; C07C0255-58 [I,A]; C07C0255-59 [I,A]; C07F0009-00 [I,C\*]; C07F0009-40 [I,A]; C07F0009-54 [I,A]; C09B0057-00 [I,C\*]; C09B0057-00 [I,A]; C09K0011-06 [I,C\*]; C09K0011-06 [I,A]; H01L0051-00 [I,C\*]; H01L0051-00 [I,A]; H05B0033-14 [I,C\*]; H05B0033-14 [I,A] NCL 428/690.000; 313/504.000; 313/506.000; 428/917.000; 558/070.000; 564/429.000; 564/431.000; 564/433.000 US 2008051607 TPCT C07C0209-60 [I,A]; C07C0209-00 [I,C\*] NCI. 564/393.000 MARPAT 141:403236 OS.

GI

AB Aminostyrylnaphthalene compds. are described by the general formula I (Ra and Rb = independently selected (un) substituted aryl groups; Rc, Rd, Re, Rg, Rh, and Ri are independently selected from H, CN, a nitro group, a trifluoromethyl group or a halogen atom; and Rf = (un)substituted (un) saturated alkyl, (un) substituted alicyclic hydrocarbon, (un) substituted aryl group, (un) substituted alkoxyl, a(un) substituted alicyclic hydrocarbyloxy, or (un)substituted aromatic hydrocarbyloxy). Organic electroluminescent devices with layers incorporating the compds. are also described. Methods for the production of the aminostyrylnaphthalene derivs. are described which entail condensation of a 4-aminobenzaldehyde deriv.and ≥1 phosphonate ester or phosphonium. Phosphonate esters or phosphoniums useful for the reactions are also described, as are methods for their production which entail reacting a halogenated aryl compound with a trialkyl phosphite. Further, halogenated anyl compds. appropriate as precursors for the synthesis of the phosphonate esters or phosphoniums are described along with a method for their synthesis by reacting a naphthalene derivative with an N-halogenated succinimide. org electroluminescent device aminostyrylnaphthalene deriv; aminostyrylnaphthalene deriv intermediate prodn; condensation

Ι

IT Phosphonium compounds RL: RCT (Reactant); RACT (Reactant or reagent) (intermediates for aminostyrylnaphthalene derivs.)

aminostyrylnaphthalene deriv prodn

aminobenzaldehyde deriv phosphonate ester phosphonium

IT Wittig reaction

(organic electroluminescent devices and aminostyrylnaphthalene compds. and synthesis intermediates for them and their production)

IT Electroluminescent devices

(organic; organic electroluminescent devices and aminostyrylnaphthalene compds. and synthesis intermediates for them and their production)

IT 91-57-6DP, 2-Methylnaphthalene, halogenated derivs.

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(in production of synthesis intermediates for aminostyrylnaphthalene derivs.)

101-02-0, Triphenylphosphite 123-56-8D, Succinimide, halogenated derivs. RL: RCT (Reactant); RACT (Reactant or reagent)

(in production of synthesis intermediates for aminostyrylnaphthalene derivs.)

786704-40-3P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(organic electroluminescent devices and aminostyrylnaphthalene compds. and synthesis intermediates for them and their production)

IT 87755-82-6 786704-39-0

RL: RCT (Reactant); RACT (Reactant or reagent) (organic electroluminescent devices and aminostyrylnaphthalene compds. and synthesis intermediates for them and their production)

=> delete select y

ALL E# DEFINITIONS DELETED

=> sel l1 rn 1-

E1 THROUGH E6 ASSIGNED

=> d sel

E1 1 101-02-0/BI E2 1 123-56-8/BI E3 1 786704-39-0/BI E4 1 786704-40-3/BI E5 1 87755-82-6/BI E6 1 91-57-6/BI

=> file rea

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DICTIONARY FILE UPDATES: 29 FEB 2008 HIGHEST RN 1005981-96-3

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http://www.cas.org/support/stngen/stndoc/properties.html

=> s e1-e6

1 101-02-0/BI (101-02-0/RN) 1 123-56-8/BI (123-56-8/RN) 1 786704-39-0/BI 1 786704-39-0/RN) 1 786704-40-3/RN) 1 7755-82-6/BI (87755-82-6/RN)

(91-57-6/RN)

L2 6 (101-02-0/BI OR 123-56-8/BI OR 786704-39-0/BI OR 786704-40-3/BI OR 87755-82-6/BI OR 91-57-6/BI)

=> d ide 1-

YOU HAVE REQUESTED DATA FROM 6 ANSWERS - CONTINUE? Y/(N):y

- L2 ANSWER 1 OF 6 REGISTRY COPYRIGHT 2008 ACS on STN
- RN 786704-40-3 REGISTRY
- ED Entered STN: 23 Nov 2004
- CN 1,5-Naphthalenedicarbonitrile, 2-[2-[4-[(4-methoxyphenyl)phenylamino]pheny
- l]ethenyl]-6-methyl- (CA INDEX NAME)
- MF C34 H25 N3 O SR CA
- LC STN Files: CA, CAPLUS, USPATFULL

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE) 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 2 OF 6 REGISTRY COPYRIGHT 2008 ACS on STN RN 786704-39-0 REGISTRY

Entered STN: 23 Nov 2004

CN Phosphonic acid, [(1,5-dicyano-6-methyl-2-naphthalenyl)methyl]-, diethyl ester (9CI) (CA INDEX NAME)

C18 H19 N2 O3 P ME

SR CA

LC STN Files: CA, CAPLUS, USPATFULL

$$\begin{array}{c} \text{CN} & \text{O} \\ \text{CH}_2 - \text{P-OEt} \\ \text{OEt} \\ \\ \text{CN} \end{array}$$

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE) 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

ANSWER 3 OF 6 REGISTRY COPYRIGHT 2008 ACS on STN

87755-82-6 REGISTRY RN

Entered STN: 16 Nov 1984

CN Benzaldehyde, 4-[(4-methoxyphenyl)phenylamino]- (CA INDEX NAME)

OTHER NAMES:

CN 4-[(4-Methoxyphenyl)phenylamino]benzaldehyde

CN 4-[N-(4-Methoxyphenyl)-N-phenylamino]benzaldehyde

C20 H17 N O2 MF

LC STN Files: CA, CAPLUS, CASREACT, USPAT2, USPATFULL

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

32 REFERENCES IN FILE CA (1907 TO DATE) 32 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 4 OF 6 REGISTRY COPYRIGHT 2008 ACS on STN

RN 123-56-8 REGISTRY

Entered STN: 16 Nov 1984

CN 2,5-Pyrrolidinedione (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Succinimide (8CI)

OTHER NAMES:

CN 2,5-Diketopyrrolidine

2,5-Dioxopyrrolidine

CN Butanimide

CN L 113B

CN Lubrizol 6406

NSC 11204 CN

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DR 127004-69-7, 89963-74-6
MF
    C4 H5 N O2
CI
    COM
LC
    STN Files:
                 AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, BIOTECHNO, CA, CAOLD,
       CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, DDFU,
       DETHERM*, DRUGU, EMBASE, GMELIN*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE,
      MRCK*, MSDS-OHS, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER,
       TULSA, USAN, USPAT2, USPATFULL, USPATOLD
         (*File contains numerically searchable property data)
     Other Sources: DSL**, EINECS**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)
**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**
            4066 REFERENCES IN FILE CA (1907 TO DATE)
            1761 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
            4072 REFERENCES IN FILE CAPLUS (1907 TO DATE)
               5 REFERENCES IN FILE CAOLD (PRIOR TO 1967)
    ANSWER 5 OF 6 REGISTRY COPYRIGHT 2008 ACS on STN
L2
    101-02-0 REGISTRY
RN
ED
    Entered STN: 16 Nov 1984
CN
   Phosphorous acid, triphenyl ester (CA INDEX NAME)
OTHER CA INDEX NAMES:
    Phenyl phosphite ((C6H5O)3P) (6CI, 7CI)
OTHER NAMES:
CN ADK Stab TPP
CN Advance TPP
CN Doverphos 10
CN Irgafos TPP
CN Irgastab CH 55
CN
    JP 360
CN
    Mark TPP
CN
   Mellite 310
CN
    NSC 43789
CN
    NSC 62219
CN
    Phosclere T 36
CN
    Plastistab 2334
CN
    Sumilizer TPP-R
CN
    Sumilizer TTP-R
CN
    TP 1
CN
    TP 1 (plasticizer)
CN
    TP-I
CN
    TPP
CN
    TPP (plasticizer)
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CN

CN

CN

CN TPP-R

Triphenoxyphosphine

CN

NSC 13114

NSC 49152

Succinic acid imide

Succinic imide

```
CN Triphenyl phosphite
```

CN Tris(phenoxy)phosphine

CN Weston TPP

MF C18 H15 O3 P

CI COM

LC SIN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DETHERM\*, EMBASE, ENCOMPLIT, ENCOMPEATZ, GNELIN\*, HSDB\*, IFICOB, IFIPAT, IFIUDB, MEDLINE, MSDS-OHS, PROMI, RIECS\*, SCISEARCH, SPECINFO, TOXCENTER, ULIDAT, USPAT2, USPATFULL, USPATOLD

(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

OPh

Pho-P-OPh

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

4408 REFERENCES IN FILE CA (1907 TO DATE)

121 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA 4409 REFERENCES IN FILE CAPLUS (1907 TO DATE)

27 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L2 ANSWER 6 OF 6 REGISTRY COPYRIGHT 2008 ACS on STN RN 91-57-6 REGISTRY

ED Entered STN: 16 Nov 1984

CN Naphthalene, 2-methyl- (CA INDEX NAME)

OTHER NAMES:

CN β-Methylnaphthalene

CN 2-Methylnaphthalene

CN NSC 3575 MF C11 H10

CI COM

LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASKEACT, CBMB, CHEMATS, CHEMINFORMEN, CHEMLIST, CIN, CSCHEM, CSNB, DETHERM\*, EMBASE, GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IFA, MEDLINE, MSDS-OHS, NAFRALERT, PIRA, PRONT, PS, RTECS\*, SPECINFO, TOXCENTER, TUXSA, ULIDAT, USPATCL, USPATCLU, USPATOLD ("File contains numerically searchable property data) Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

5500 REFERENCES IN FILE CA (1907 TO DATE)
47 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

5511 REFERENCES IN FILE CAPLUS (1907 TO DATE)

## 6 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> FIL REGISTRY

COST IN U.S. DOLLARS
SINCE FILE TOTAL
FULL ESTIMATED COST 12.46 19.26
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SINCE FILE TOTAL

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=> SET TERMSET E#

SET COMMAND COMPLETED

=> DEL SEL Y

=> SEL L2 1 RN

E1 THROUGH E1 ASSIGNED

=> S E1/RN

L3 1 786704-40-3/RN

=> SET TERMSET LOGIN

SET COMMAND COMPLETED

=> FIL CAPLUS

COST IN U.S. DOLLARS SINCE FILE TOTAL ENTRY SESSION

FULL ESTIMATED COST 0.55 19.81

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) SINCE FILE TOTAL ENTRY SESSION

0.00

-0.80

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=> S L3

SOURCE:

L4 2 L3

=> DIS L4 1- IBIB IABS
YOU HAVE REQUESTED DATA FROM 2 ANSWERS - CONTINUE? Y/(N):Y
THE ESTIMATED COST FOR THIS REQUEST IS 5.82 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

4 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:1202881 CAPLUS

DOCUMENT NUMBER: 144:282870

TITLE: High performance OLED panels for Sony CLIE PDA: development of red emitter and super top emission

structure

AUTHOR(S): Ichimura, Mari; Noh, Seong-Hee; Ishibashi, Tadashi;

Ueda, Naoyuki, Tamura, Shin-ichiro
CORPORATE SOURCE: Display Device Development Group, Micro Systems

Network Company, Sony Corp., 4-14-1 Asahi-machi,

Atsugi-shi, Kanagawa, 223-0014, Japan

Proceedings of SPIE-The International Society for

Optical Engineering (2005), 5937(Organic

Light-Emitting Materials and Devices IX),

593703/1-593703/12

CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering DOCUMENT TYPE: Journal

LANGUAGE: English

LANGUAGE: Engl ABSTRACT:

Sony has commercialized a full-color OLED comprising a new red emissive material, which provides high performance and long operation lifetime. We have

carried out systematic research and developed a promising material that has excellent properties for practical applications. This compound shows an absorption peak and a luminescence peak at 483 nm and 644 nm, resp. The molar absorption coefficient is large (s = 38,100 M-1cm-1 in 1,4-dioxane) and the fluorescence quantum yield is also very high (QYf =0.82 in 1,4-dioxane). The glass transition temperature is as high as 135 °C. This compound offers thermally stable amorphous state in vacuum coating and is emissive even in single component films. We incorporated the new styryl compound in Sony's proprietary Super Top Emission technol, and achieved outstanding brightness and wide color gamut comparable to the NTSC standard. The Super Top Emission consists of a top emitting device structure and color filters, which realize sufficient brightness and pure color at the same time without impairing the wide viewing angles. We obtained suitable device performance for practical use by tuning the layered structures. The emitting color is adjusted by optimizing the doping concentration of the styryl compound in the emitting layer and each thickness of

the organic layers. We achieved the chromaticity (0.65, 0.35) in the CIE 1931 standard colorimetric system. The device operation lifetime exceeds 64,000 h at the initial luminance 500 cd/m2. We would also like to discuss the advantages over the conventional red emissive materials.

REFERENCE COUNT: THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

23 L4 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:930972 CAPLUS DOCUMENT NUMBER: 141:403236

TITLE: Organic electroluminescent devices,

aminostyrylnaphthalene compounds and synthesis intermediates thereof, and production processes of the

INVENTOR(S): Ichimura, Mari; Ishibashi, Tadashi; Tamura, Shinichiro PATENT ASSIGNEE(S): Sony Corporation, Japan

Eur. Pat. Appl., 76 pp.

SOURCE: CODEN: EPXXDW

DOCUMENT TYPE: Patent LANGUAGE: English FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

I	PATENT NO.				KIND		DATE			APPLICATION NO.							DATE		
1	EP 1473349			A2		20041103			EP 2004-7087					20040324					
E	EΡ	9 1473349			A3		20070718												
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	JP 2004307472				A	A 20041104 JP 2004-33056								20040210					
	JΡ	4001	118			B2		2007	1031										
(	CN 1533220			A		2004	0929		CN	20	04-	1003	2650			20040	324		
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Ţ	JS	2004	2656	27		A1		2004			US	20	04-	80791	34			20040	324
Ţ	JS	2008	0516	07		A1		2008	0228		US	20	07-	76556	50			20070	620
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OTHER SOURCE(S): GRAPHIC IMAGE:

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## ABSTRACT:

Aminostyrylnaphthalene compds. are described by the general formula I (Ra and Rb = independently selected (un)substituted aryl groups; Rc, Rd, Re, Rg, Rh, and Ri are independently selected from H, CN, a nitro group, a trifluoromethyl group or a halogen atom; and Rf = (un)substituted (un)saturated alkyl, (un)substituted alkyl, (un)substituted aryl group, (un)substituted alkoxyl, a (un)substituted aryl group, or (un)substituted araminescent devices with layers incorporating the compds. are also described. Methods for the production of the aminostyrylnaphthalene derivs. are described which entail condensation of a 4-mainobenzaldehyde deriv.and ≥1 phosphonate ester or phosphonium. Phosphonate esters or phosphoniums useful for the reactions are also described, as are methods for their production which entail reacting a halogenated arvl

with a trialkyl phosphite. Further, halogenated aryl compds. appropriate as precursors for the synthesis of the phosphonate esters or phosphoniums are described along with a method for their synthesis by reacting a naphthalene derivative with an N-halogenated succinimide.

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compound

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